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Fig. 1.
p. 289.



Fig. 3.

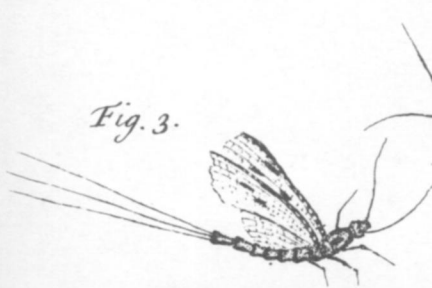
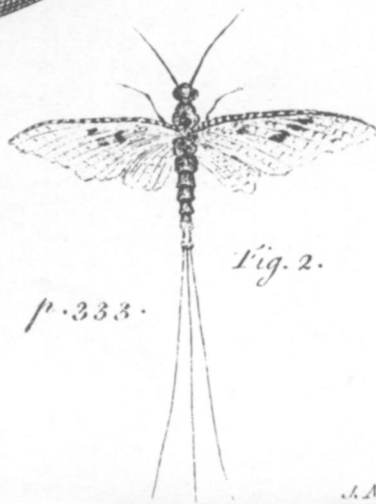
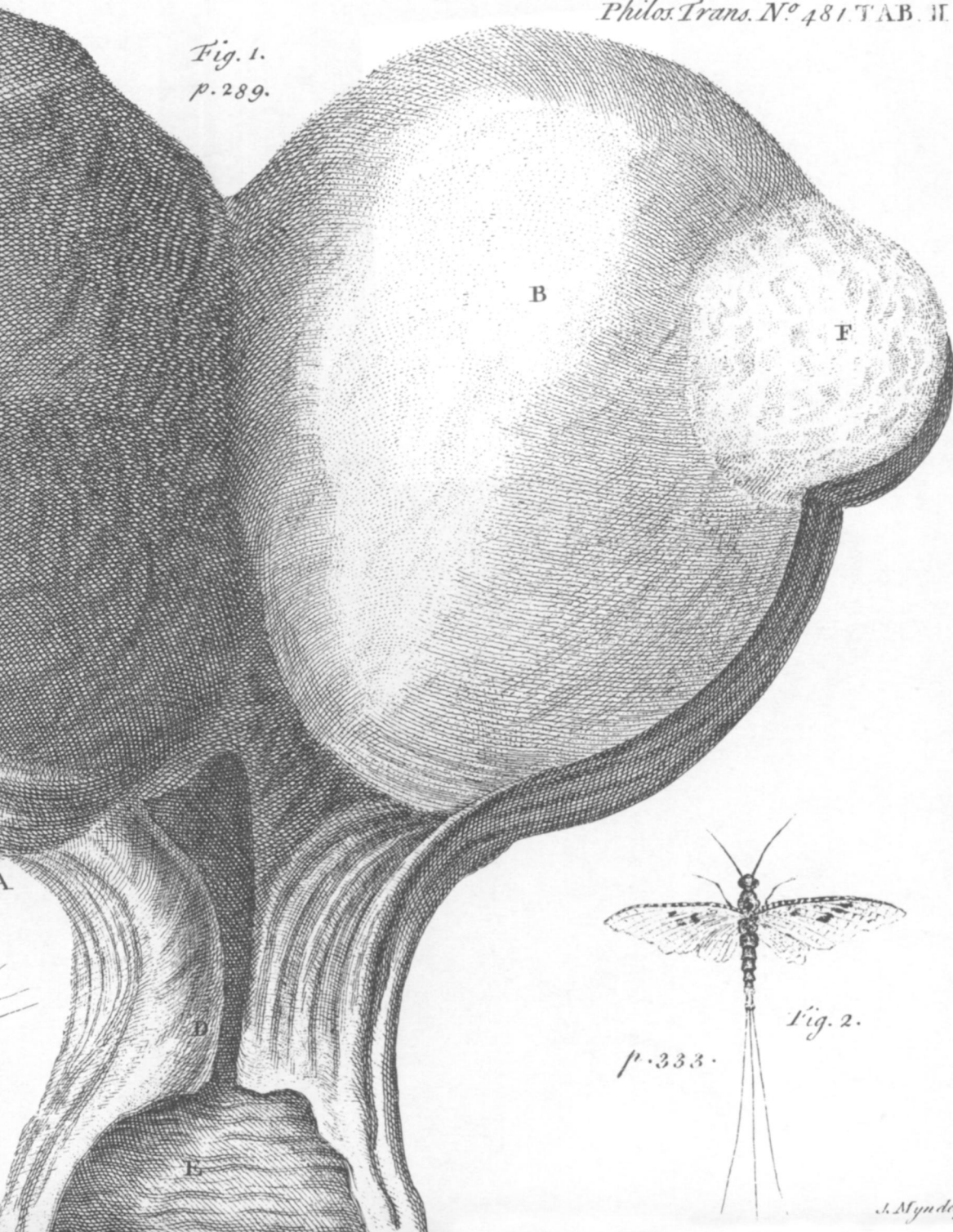


Fig. 4.



Fig. 1.
p. 289.



p. 333.

J. Mynde sc.

A Paper formerly omitted.

IX. *Some Observations on a sort of Libella **
or Ephemeron, by Mr. Peter Collinson,
F. R. S.

Winchester, June 23. 1744.

Read Jan. 31.
1744-5.

AS I walked by the River's Side at *Winchester*, I was told, that now was the Time of Year that the *May Flies*, a Species of *Libella*, came up out of the Waters, and were seen for a few Days, and then disappeared. This excited my Curiosity, having never seen this Insect.

May 26, 1744. I was first shewn it by the Name of *May Fly*, on account of its annual Appearance in that Month. It lies all the Year (but a few Days) in the Bottom or Sides of the River, near the Likeness of the Nymph of the small common *Libella's*; but when it is mature, it rises up to the Surface of the Water, and splits open its Case; then, with great Agility, up springs the new Animal, with a slender Body, with four blackish-vein'd transparent shining Wings, with four black Spots in the upper Wings; the under Wings much smaller than the upper ones; with three long Hairs in its Tail. See TAB. II. Fig. 2. &c.

The

* I take this to be the *Musca tripilis* mention'd in *Mouset, Insect. Theat. p. 64.* and may properly be called *Musca, Libellæ affinis, cauda tripili.* C. M.

The Husk or *Exuvia* that it leaves behind floats innumerable on the Water. It seems to me a Species of *Ephemeron*; and I imagined it was the same Insect described by *Goedart* and *Swammerdam*; but a few Days convinced me otherwise, for I soon found these had a longer Duration than theirs.

The next Business (after this Creature is disengaged from the Water) is flying about to find a proper Place to fix on (as Trees, Bushes, &c.) to wait for its approaching Change, which is effected in two or three Days.

The first Hint I received of this wonderful Operation was seeing their *Exuvia* hanging on a Hedge. I then collected a great many, and put in Boxes; and, by strictly observing them, I could tell when they were ready to put off their old Cloaths, though but so lately put on.

I had the Pleasure to shew my Friends one that I held on my Finger all the while it performed this great Work: It was surprising to see how easily the back Part of the Fly split open, and produced the new Birth, which I could not perceive partakes of any thing from its Parent, but leaves Head, Body, Wings, Legs, and even its three-hair'd Tail behind, or the Cases of them. After it has reposed itself a while, it flies with great Briskness to seek its Mate.

In the new Fly a remarkable Difference is seen in their Sexes, which I did not so easily perceive in their first State, being then Male and Female much of a Size, but now the Male was much the smallest, and the Hairs in their Tail much the longest.

I was

I was very careful to see if I could find them ingendring, conceiving it to be much after the Manner of the same Species: But all that I could discover was, that the Males separated, and kept under the Cover of the Trees, remote from the River. Hither the Females resorted, and mixed with them in their Flight (great Numbers together) with a very brisk Motion of darting or striking at one another when they met, with great Vigour, like as House-Flies will do in a sunny Room. This they continued to do for many Hours, and this seem'd to me their Way of Coition; which must be quick and soon perform'd, as they are of so short Duration. I tried several Ways to make farther Discoveries, but all proved ineffectual.

When the Females were impregnated, they soon left the Company of the Males, and sought the Rivers, and kept constantly playing up and down on the Waters. It was very plainly seen, every time they darted down, they ejected a Cluster of Eggs, which seemed a pale bluish Speck, like a small Drop of Milk, as they were sinking to the Bottom of the River; and then, by the Elasticity of their Tails, they spring up again, and then dart down again. Thus they continue, until they have exhausted their Stock of Eggs, and spent their Strength, being so weak that they can rise no more, but fall a Prey to the Fish.

But by much the greatest Numbers perish on the Waters, which are covered with them. This is the End of the Females; but the Males never resort to the River that I could perceive; but, after they have done their Office, drop down, languish, and die, under the Trees and Bushes.

I observed this Species of *Libella* abounded most with Females; which was very necessary, considering the many Enemies they have in their short Appearance; for both Birds and Fish are very fond of them, and, no doubt, under the Water are a Food for small aquatic Insects.

What is further remarkable in this surprising Creature is, that, in a Life of three or four Days, it eats nothing, seems to have no *Apparatus* for that Purpose, but brings up with it out of the Water sufficient Support to enable it to shed its Skin, and perform the principal Ends of Life with great Vivacity.

They appear at Six o' Clock in the Evening. On the 26th of *May* I perceived a few; but the 27th, 28th, 29th, and 30th, it was a Sight very surprising and entertaining, to see the Rivers teaming with innumerable pretty nimble flying Animals, and almost every thing near cover'd with them; when I looked up, the Air was full of them, as high as I could discern; and seem'd so thick, and always in Motion, the like it seems when one looks up and sees the Snow coming down: And yet this wonderful Appearance, in three or four Days after the last of *May*, totally disappear'd.

After I had drawn up these Observations, it was more than a Year before I had the Pleasure of perusing Mr. *Reaumur's* elaborate Work, wherein he describes this Insect by the Name of *Ephemere* *Tome* vi. p. 516. *Pl.* 44.; but, as I find we vary in many Particulars, and as it may tend further to

illustrate the Subject, I hope the above Account will not prove unacceptable to the Lovers of Natural Knowledge.

Peter Collinson.

See TAB. II.

Fig. 2. Represents the Back of this Insect.

Fig. 3 and 4. are two Side-Views of the same.